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Coca-Colonization and Hybridization of Diets among the Tz’utujil Maya

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Biomedical health professionals express increasing concern that rising consumption of soft drinks and processed foods in Mayan and Latin American eating patterns may lead to detrimental nutritional and health consequences. Scholars debate whether the pervading presence of Coca-Cola and Pepsi in developing countries represents “Coca-Colonization,” synonymous with cultural imperialism, or cultural hybridization. Using mixed qualitative and quantitative research methods, including participant observation and semi-structured interviews, this study explores the development of Coca-Colonization and cultural hybridization among the Tz’utujil Maya of Santiago Atitlán, Guatemala. By specifically examining biomedical perspectives, cycles of conquest, the political economy, religion, celebrations, and the physical environment through the lens of soft drinks, this study finds that Coca-Colonization and cultural hybridization are complementary rather than mutually exclusive processes that contribute to dietary transitions, economic development, and differential health beliefs related to soft drink consumption.

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Throughout Latin America and many developing regions, consumption of Coca-Cola and other soft drinks is on the rise (Leatherman and Goodman 2005; Coca-Cola Company 2007). The per capita consumption of Coca-Cola in Mexico, for example, is the highest in the world and has increased consistently over the past 20 years throughout Latin America (Coca-Cola Company 2007). In Guatemala, consumption rates reached 260 eight-ounce servings per capita annually, representing a 20-percent increase in 2003 (Chauvin 2004). Economic development and transitions from subsistence to market-based economies in Latin America have led to an increased availability of Westernized processed foods, which are often calorie-dense but nutrient-poor (Dewey 1989; Baer 1998; Leatherman and Goodman 2005).

The phenomenon of the increased market penetration of Coca-Cola and other soft drinks in the developing world can be interpreted through Coca-Colonization and cultural hybridization theories. "Coca-Colonization," synonymous with cultural imperialism, was a term coined to signify the imposition of American culture on other nations around the world (McBride 2005). Consumers in developing countries may prefer brands with a non-local country of origin, such as the U.S., over brands that are seen as local in origin, often to demonstrate higher social status and lifestyles similar to those in economically developed countries (Batra et al. 2000; Howes 1996). Although marketed as a universal product, Coca-Cola may nonetheless be closely identified with the culture and ideals of the United States (Howes). Scholars who endorse Coca-Colonization theories view the spread of soft drinks as an example of Western imperialism diffusing an "anonymous artificial mass-marketed global culture" at the expense of authentic and distinctive local cultures (Wilk 1999, 244).

Cultural hybridization represents the development of a translocal *mélange* of cultures across locations and identities (Pieterse 2009). Despite globalization and the increase of mass markets in the developing world, culture is not becoming homogenous but is instead mixing in new ways (Tobin 1992). For instance, Jeffrey Pilcher (2002) explores cultural hybridization in Mexico, noting how Pepsi has become integrated into Mexican ritual life and cuisines. Furthermore, Anne McBride (2005) documents the use of Coca-Cola as a cooking ingredient for distinctive local dishes in Colombia, Brazil, the Philippines, and many other developing countries. As local populations integrate soft drinks into their traditional cuisines, rituals, and beliefs, they make the products part of their own culture, and are often unaware of their American origins (McBride; Howes 1996). From an economic perspective,

Coca-Colonization represents the increasing profits, sales, and penetration of soft drink companies into developing world markets. The commoditization of food systems and transitions to market-based economies have increased the replacement of local farming foods with purchased processed foods, leading to the process of dietary delocalization (Pelto and Pelto 2003; Dewey 1989).

From a local point of view, increased sales of soft drinks may indicate greater economic development in the region, particularly related to tourism. Tourism-based economic growth often generates jobs and income for local families and may increase foreign exchange earnings and gross national product per capita (Stronza 2001). However, wage labor opportunities created through tourism may disrupt subsistence activities of small producers and increase wealth stratification.

From a nutrition and health perspective, Coca-Colonization may represent the invasion of chronic diseases associated with developed countries, such as obesity and diabetes. Although undernutrition remains a critical issue among Latin American children, the prevalence of obesity and overweight is rising among Latin American adults, reaching or exceeding the epidemic levels found in many developed nations (Filozof et al. 2001; Popkin 2001). In Guatemala, 23% of households contain a growth stunted child with an overweight mother, the highest rate in Latin America (Jehn and Brewis 2009; Garrett and Ruel 2005).

The movement away from local farming diets to diets consisting of highly processed foods, including soft drinks, decreases both dietary diversity and nutritional status (Dewey 1989). Deficiencies in macro and micro nutrients resulting from decreased nutritional status can adversely affect health through growth, physical and cognitive development, reproduction, and the immune system (Allen 1993; Black 2003; Leatherman and Goodman 2005). Among Guatemalan children, 51.3% suffer from growth stunting, the highest rate in Latin America (Garrett and Ruel 2005).

The biomedical literature reports positive associations among soft drink consumption and type 2 diabetes, obesity, hypertension, dental caries, increased systolic and diastolic blood pressure, and decreased nutrient and calcium intake (Reynolds and Finke 2002; Vartanian, Schwartz, and Brownell 2007), although these results may not be generalizable to developing countries like Guatemala where diets may be systematically different. Nonetheless, scholars hypothesize that the increased consumption of soft drinks and junk foods among Maya populations may have exacerbated the "double-edged sword of malnutrition" by contributing to increased obesity among adults as well as growth stunting in undernourished children (Dickinson et al. 1993, 315; Leatherman and Goodman 2005; Hawkes 2006).

Cultural imperialism, cultural hybridization and economic Coca-Colonization theories are complex yet interconnected and none alone can fully explain the dietary transition towards increased soft drink and

processed food consumption (McBride 2005; Pilcher 2002). Rather than being mutually exclusive, Coca-Colonization and cultural hybridization can coexist and strengthen one another.

A review of Coca-Colonization and cultural hybridization, particularly in Mexico where the phenomena are best documented, reveals how economic colonization and cultural hybridization can coexist. In Mexico, soft drink companies specifically tailor marketing strategies to local contexts, which promotes hybridization as well as sales. In the 1920s and 1930s, soft drink distributors were among the first entrepreneurs to take advantage of the Mexican government's newly built highways (Pilcher 2002). Coca-Cola's current distribution system efficiently reaches thousands of *tiendas* (small variety stores) across Mexico, which account for over 90% of the company's sales (Hawkes 2006). Coca-Cola is even available in parts of Mexico without access to clean drinking water or milk (McBride 2005). Hawkes explains how the passage of the North American Free Trade Agreement (NAFTA) in 1994 accelerated US foreign direct investment into the Mexican food processing industry. By 1999, US companies' investment in the Mexican food processing industry was \$5.3 billion, a 25-fold increase from 1987 (Hawkes).

In terms of hybridization, soft drinks have been integrated into religious beliefs and practices in Mexico. During colonial periods, religious brotherhoods including *cofradías* often promoted consumption of rum as a way to improve communication with the gods and saints. In the 1970s, however, some religious brotherhoods instead turned to Coca-Cola because of a growing concern about alcoholism (Nash 2007). Pepsi has also become hybridized into the religious practices of indigenous Mexican populations. In the Mexican village of San Juan Chamula, Tzotzil Indians make community toasts with Pepsi Cola rather than beer or tequila, like in other parts of Mexico (Pilcher 2002). Furthermore, religious leaders celebrate church services with Pepsi instead of wine, telling parishioners that carbonation drives off evil spirits and cleanses the soul.

In addition to integration into religious practices, hybrid cooking with Coca-Cola has been documented in Latin America and around the world. In 1981, Coke produced a promotional brochure entitled "International Cooking with Coca-Cola," which included a recipe for Colombian fresh banana cake calling for Coke in the cake and frosting (McBride 2005). Other Colombian dishes with Coca-Cola include leg of pork, blackened beef, and coconut rice in Coke. Coke has been documented as an ingredient in many other dishes including Filipino chicken adobo, Chinese pepper steak, Scottish oaten bread, and Russian beef stroganoff (McBride 2005). In these dishes, Coke serves as a sweetener, cooking liquid, and coloring. In Trinidad, "rum and Coke" came from the mixing of Coca-Cola with Trinidadian calypso (Miller 2005).

A review of the literature demonstrates how Coca-Colonization and hybridization may be synergistic processes. We explore Coca-Colonization

and cultural hybridization among the Tz'utujil Maya of Santiago Atitlán, Guatemala with a particular focus on biocultural nutritional and health effects. The Tz'utujil Maya have experienced both conquest and colonization while maintaining and adapting unique local culture through language, ritual, dress, and food (Lovell 1988). In particular, this study investigates the extent to which Coca-Colonization and hybridization exist among the Tz'utujil Maya through health beliefs, biomedical perspectives, economics, religion, cultural celebrations, and the physical environment.

SETTING AND METHODS

Study Community

Located between the southwest shore of Lake Atitlán and the base of the volcano Tolimán, Santiago Atitlán lies at an altitude of 5,000 feet and has a population of 32,254 (XI Censo Nacional de Población 2002; Schram and Etzel 2005). A vast majority (98.16%) of the population identifies with indigenous Maya ethnicity, while the remainder mainly identifies with *Ladino* (*Mestizo*, or of mixed European and indigenous descent) ethnicity (Censo de Santiago Atitlán 2006). The primary language for 94% of the residents is Tz'utujil, one of the 21 Mayan languages spoken in Guatemala; however, 54% of the villagers speak Spanish (Schram and Etzel).

The Tz'utujil Maya have experienced conquest and colonization for almost five centuries. Edward Spicer outlines three cycles of conquest the Maya of Guatemala have faced since the early sixteenth century: (1) conquest by imperial Spain, (2) conquest by state terror, and (3) conquest by international and local capitalism (Lovell 1988). The Coca-Cola Company in Guatemala has been implicated in the latter two cycles of conquest, through its alleged involvement in the Guatemalan Civil War and capitalist investment in Central America. In 1975, Coca-Cola Company workers in Guatemala began their first attempt to organize a union. Henry Frundt (1987) documents how Guatemalan Coca-Cola employees unionized to demand an end to 12-hour shifts, better working conditions, and a 20% increase in pay; however, John Trotter, an attorney from Houston and the president of the franchise, teamed up with anti-union Guatemalans to thwart these unionization attempts. Using his ties to the Guatemalan military, Trotter allegedly attempted to assassinate key members of the Coca-Cola union's leadership (Frundt 1987). In 1981, under pressure by Amnesty International and the U.S. State Department managers of Coca-Cola decided not to renew Trotter's contract.

Indices of poverty and socioeconomic status in Santiago Atitlán reflect the area's status as a developing region. A majority of the population of Santiago Atitlán earns less than the legal Guatemalan minimum wage of 1,274 Quetzales (163 USD) per month (Censo de Santiago Atitlán 2006).

Although most primary school-aged children attend primary school, only 36% of *básico*-aged (middle school equivalent) and 11% of *diversificado*-aged (high school equivalent) Atitecos attend school (Censo de Santiago Atitlán). Santiago Atitlán has become a popular tourist destination in Guatemala, and many local jobs stem from tourism-based economic development.

Farming of maize, beans, coffee, tomatoes, carrots and avocados are staples of the Tz'utujil economy and many of these products are exported. Traditionally, corn, black beans and sugar have provided the major energy needs in the Tz'utujil diet (Goody 2002). Corn is often consumed in the form of tortillas or *tamalitos* (steamed corn dough) and may be eaten with black beans, *chirmol* (homemade salsa), cheese, eggs or meat. In recent years, processed foods including soft drinks, chips, candies, and other snacks have become increasingly consumed and available.

Tz'utujil residents' main food shopping, particularly for fresh produce and meats, occurs at an indoor market, open daily, located near the village central plaza. Three times a week the streets and plaza surrounding the central market convert into an open-air bazaar where additional vendors sell foods and goods. Although Santiago Atitlán contains only one central market, over 580 tiendas are distributed throughout the town (Censo de Santiago Atitlán 2006). Atitecos increasingly rely on tiendas for soft drinks, packaged snacks, and other mass-produced processed foods (Nagata et al. 2009).

Obesity and overweight among adults as well as stunting and undernutrition among children are major health concerns among residents of Santiago Atitlán. For instance, in one household survey, 92% of adult women in Santiago Atitlán reported concerns of undernutrition and hunger in their households (Nagata et al. 2009). Insufficient quantity of food consumed and travel distance to the market were also causes of anxiety. Concurrently, 46.9% of the adult women respondents were classified as obese or overweight, as measured by a body mass index of 25 or greater (Nagata et al. 2009). Among Tz'utujil Maya women, a larger body mass index was associated with higher socioeconomic status.

This research project derives from a community-identified concern with nutrition and diet change related to obesity and type 2 diabetes. One community health survey revealed that Atitecos believed diabetes was one of the five most severe health problems affecting Santiago Atitlán (Schram and Etzel 2005). Four percent of respondents reported a diagnosis of diabetes from a biomedical physician; however, 17% of respondents reported diabetes-related symptoms, indicating the possibility of undiagnosed cases in the community (Schram and Etzel). In particular, local Atiteco physicians and health care workers identified the need to examine Tz'utujil dietary change, in light of increasing obesity and diabetes-related cases at the Hospitalito Atitlán, a small privately owned hospital in Santiago Atitlán.

Data Collection Methods

We conducted ethnographic research in two stages, from March 2007 through July 2007 and from March 2008 to August 2008. Specific qualitative data collection strategies for this study included participant observation and semi-structured interviews. All ethnographic and interview data were gathered by the first author, although each of the co-authors was present in the field both in 2007 and 2008 during the data collection period.

Based on a literature review, participant observation, and unstructured interviews from March 2007, a semi-structured interview questionnaire with both closed and open-ended questions which specifically investigated Tz'utujil health beliefs related to soft drinks was designed. Questions focused on Atitecos' views regarding Coca-Cola consumption, health, and medicinal value. Self-reported sociodemographic data collected included age, ethnicity, gender, marital status (married, single, widowed, or committed), number of children, years of schooling, literacy (literate or illiterate), and Coca-Cola consumption (in response to the question "How many times per week do you drink Coke or other soft drinks?"¹). Heights and weights of respondents were measured using a wooden Shorr Height measuring board (Olney, Maryland) and a Tanita electronic scale (Model BC-548, Arlington Heights, Illinois), respectively. Respondents were measured using standardized procedures wearing light clothes and no shoes or hats; body mass index was calculated using weight in kilograms divided by the square of height in meters (kg/m²). Regional quota sampling methods based on *canton* (municipal division) location of residence were used. Based on the 2004 Census, a sample from each canton was interviewed in proportion to the population of Santiago Atitlán as a whole and a regional quota of households was calculated to give a total sample of approximately 50 (Schram and Etzel 2005).

The first author and a field assistant chose a position near the geographic center of each canton to begin interviewing. Approximately every tenth house was visited from this position until the regional quota was reached. Whenever possible, the female head of household was interviewed because of her importance in household food resource allocation (Goody 2002). If a female head of household was unavailable, then another adult female or male was interviewed. Interviews were conducted from June 2007 to July 2007 between 09:00 and 18:00 on all days of the week, excluding holidays, and generally lasted between 30 and 60 minutes. In the end, 53 Atitecos participated in the semi-structured interviews.

Qualitative data from unstructured and semi-structured interviews were recorded during the interviews on paper-based field notes. For each of the semi-structured interviews, one of two women field assistants was

¹ "Soft drinks" included any Coca-Cola, Pepsi, or Super Cola soft drink product.

present to facilitate translation between Spanish and Tz'utujil if necessary, although approximately half of the respondents spoke Spanish. After each semi-structured interview, the first author and the field assistant reviewed the interview notes, summarized, and clarified any specific points. Field notes and narrative comments were then recorded into a word processing document.

During the second research period, from March 2008 to August 2008, a separate sample of 32 respondents was selected for in-depth interviews based on having occupations that were related to the sales of soft drinks or as health care professionals who had knowledge of dietary patterns in Santiago Atitlán. Interviewees included Coca-Cola and Pepsi employees and representatives, tienda owners, other Coke and Pepsi clients, folk healers, religious leaders, and health care professionals including physicians, nurses, and nutritionists. Content analysis was used to analyze qualitative data. Interviews were coded using a master set of codes determined inductively. Major themes related to soft drink beliefs and practices were identified using coding and analytic memos. Fifteen member checks and follow-up interviews were conducted in August 2008 to confirm findings and clarify data that appeared contradictory or ambiguous.

Ethical approval for this research was provided by the Social and Behavioral Sciences Institutional Review Board of the University of Pennsylvania and the Ministry of Health in Santiago Atitlán, Guatemala. Informed consent of all study participants was obtained verbally, as Tz'utujil Maya is not a written language.

RESULTS AND DISCUSSION

Coca-Cola, Health, and Illness

Content analysis of semi-structured questionnaires revealed several themes related to Coca-Cola, health, and illness. Survey respondents were mainly Tz'utujil Maya women (92.5%) who had an average age of 33.59 (table 1). In terms of marital status, 58.4% were married, 32.1% were single, 7.5% were widowed, and 1.9% were in a committed relationship. On average, respondents had 3.44 children, 1.75 years of schooling, and a body mass index of 25.88. Nearly half (47.1%) of respondents were classified as obese or overweight. Overall, respondents consumed Coca-Cola or other soft drinks 1.91 times per week.

Data from the semi-structured questionnaire revealed that nearly two-thirds of respondents ($n = 33$) believe Coca-Cola consumption to be unhealthy (table 2), in part because of carbonation, sugar, chemicals, and lack of vitamins.

One 28-year old woman said, "Coca-Cola is not healthy for you. It has much gas and chemicals which are unnatural and can upset your stomach or

TABLE 1 Selected Sociodemographic Characteristics of Study Participants

Demographic characteristics	<i>n</i>	Mean (or %)	<i>SD</i>	Range
Age (years)	53	33.59	13.33	18–82
Ethnicity	53			
Tz'utujil Maya	50	94.3%		
Ladino	3	5.7%		
Gender	53			
Female	49	92.5%		
Male	4	7.5%		
Marital Status	53			
Married	31	58.4%		
Single	17	32.1%		
Widowed	4	7.5%		
Committed	1	1.9%		
Number of children	53	3.44	2.65	0–10
Schooling (years)	53	1.75	3.29	0–12
Literacy	53			
Literate	20	37.7%		
Illiterate	33	62.3%		
Body mass index (kg/m ²)	53	25.88	4.72	17.08–34.25
Underweight (BMI < 18.5)	2	3.8%		
Normal range (18.5 ≤ BMI < 25)	26	49.1%		
Overweight (25 ≤ BMI < 30)	13	24.5%		
Obese (BMI ≥ 30)	12	22.6%		
Coca-Cola consumption (times/week)	49	1.91	1.98	0–7

TABLE 2 Beliefs about Coca-Cola, Health, and Illness

Coca-Cola health beliefs	No.	%
Unhealthy	33	62.3%
Carbonation or gas	7	13.2%
Sugar	3	5.7%
Healthy	20	37.7%
<i>Coca-Cola Association with Illness</i>		
Associated with illness	37	69.8%
Diabetes	15	28.3%
Gastritis	4	7.6%
Excess Coca-Cola causes illness	5	9.4%
Not associated with illness	16	30.2%
<i>Coca-Cola Medicinal Value</i>		
Medicinal value	10	18.9%
Cough and sore throat remedy	5	9.4%
No medicinal value	34	64.2%
Do not know	9	17.0%

make you burp. Junk foods from tiendas are like parasites and you shouldn't eat them."

One 45-year old woman said, "Many people say Coca-Cola has too much sugar which can make you sick if you drink too much."

More than one-third of respondents believe Coca-Cola consumption to be healthy. This may be related to the view that Coca-Cola has medicinal value, often as a cough and sore throat remedy, a notion spread by *curanderos* (folk healers) and through word of mouth. Atitecos also cited Coke's refreshing quality and good taste as reasons for its health qualities.

One 20-year old Atiteco man said, "When I drink Coke, my mouth and throat feel good and refreshed, so Coke must be healthy."

In addition, a Tz'utujil *curandera* (folk healer) endorsed drinking Coca-Cola for good health. She said, "I drink Coca-Cola whenever I want to. Coke is good for one's health and I drink it every day. However, my children tell me to drink less of it." Local healers and belief systems hybridize Coca-Cola into their health repertoire, influencing Atitecos' perceptions of soft drinks. For instance, when local healers endorse Coca-Cola consumption, believe it is healthy, and even prescribe it to others for coughs or sore throats, their patients often follow suit.

In a different health-related question involving direct illness, approximately 70% of Atiteco respondents ($n = 37$) associated Coca-Cola with particular illnesses (table 1). Atitecos most frequently believed Coca-Cola consumption led to diabetes ($n = 15$) and gastritis ($n = 4$). Other illnesses cited were heartburn, ulcers, cancer, and diarrhea. Five respondents said that Coca-Cola consumed in moderation did not cause illness, but did lead to illnesses if drunk in excess. One Tibetan study found that respondents similarly believed that Pepsi caused diarrhea, although some were unsure of Pepsi's health effects (Dickerson et al. 2008).

One 58-year old woman said, "I was diagnosed with diabetes and the doctor told me that I was sick so I cannot drink much Coca-Cola. I'm now scared to drink it because people say it is bad and gives many other illnesses."

One 31-year old woman said, "You can get diabetes or gastritis from drinking Coca-Cola, but only when you drink it in excess."

Biomedical Perspectives on Coca-Cola Consumption

As the consumption of Coca-Cola and other processed foods continues to rise, local Atiteco biomedical workers express concerns about nutrition and related health issues. In contrast to local "folk" healers, many local biomedical health professionals view Coca-Cola consumption as "unhealthy" and associate it in particular with diabetes and obesity. Diet is a particularly salient issue in Santiago Atitlán because of recent increases in type 2 diabetes. The number of cases of type 2 diabetes seen in the Hospitalito Atitlán has doubled in the last five years, and was rare only fifteen years earlier, according to the hospital's medical director (interview, July 30, 2008).

The medical director of the Hospitalito Atitlán said,

Obesity is a problem, and it is a worry for health care professionals in Santiago Atitlán. Globalization is a major factor in the increased obesity over the years, and has led to the influx of unhealthy processed foods. Atitecos now drink too much Coke. The people that come in to sell these snacks don't talk about the risks that come with the unhealthy food; rather their goal is just to sell the snacks. These snacks change the culture, especially among children, because children no longer have juice or fruit as snacks, only Coca-Cola and Tortrix [fried corn chips].

As a result of rising diet-related health concerns, a nutritionist began working at the Hospitalito Atitlán to consult with diabetes patients on their diets and to give community talks about nutrition, which included discussions about Coca-Cola and other processed foods. In many of these consultations and talks, Coca-Cola served as the symbol for all other soft drinks and processed foods; the nutritionist would carry around a bottle of Coca-Cola as her primary example of an unhealthy food. Although important for symbolic value, Coca-Cola was only one of many foods discussed during these sessions. For instance, health care professionals in Santiago Atitlán also warn against the overconsumption of carbohydrates through corn tortillas and added sugar in coffee, porridge, and other foods.

The association of Coca-Cola with illness among Atitecos may be influenced by the beliefs of biomedical health professionals like the hospital's Medical Director or nutritionist. The biomedical literature, read by biomedical health professionals, indicates associations among soft drink consumption and type 2 diabetes, increased energy intake, obesity, hypertension, dental caries, increased systolic and diastolic blood pressure, and decreased nutrient and calcium intake (Reynolds and Finke 2002; Vartanian et al. 2007). Despite these biomedical viewpoints, Atitecos' opinions on Coca-Cola are also heavily influenced by a plethora of factors including the extensive marketing strategies of the Coca-Cola Company.

Coca-Colonization and Hybridization through Marketing

Coca-Cola logos permeate Santiago Atitlán, from the billboards on the streets leading into the town, to red and white Coca-Cola painted tiendas, to local television programming in Tz'utujil homes. The economic Coca-Colonization of the Tz'utujil Maya is best exemplified through the rising sales, efficient distribution strategies and media advertising of the product in Santiago Atitlán. According to a representative of the regional Coca-Cola distribution office in San Lucas Tolimán, a neighboring town with a large Tz'utujil Maya population, Coca-Cola Classic is the best selling Coke product in Santiago Atitlán, followed by Orange Fanta. Other flavors adapted by the Coca-Cola Company

to appeal to regional tastes include Grape Fanta, Strawberry Fanta, Apple Lift, and Grapefruit Lift. Coca-Cola sales in Santiago Atitlán trump those of neighboring towns in the region due to its effective distribution in numerous tiendas, greater population density, and successful marketing versus Pepsi and other soft drink companies. One regional Coke representative commented, “Atitecos drink more Coca-Cola than residents of other pueblos. Atitecos drink Coke with breakfast, lunch, and dinner—and they buy Coke by the liter.”

Many soft drink companies focus their sales efforts on tiendas, as Santiago Atitlán does not have a supermarket like larger towns in Guatemala. One hybridized marketing strategy soft drink companies utilize to promote their brands in Guatemala entails sponsoring the painting of buildings, particularly tiendas, with their logos. In Santiago Atitlán, tiendas and other buildings integrate painted slogans, logos, and images of soft drink brands with their store names. An owner of a tienda painted with the Pepsi logo said, “If I sell 50 cases of Pepsi, then Pepsi representatives will come and paint my tienda. They will paint our store’s name for free. They usually will repaint the tienda once a year around *Semana Santa* [Holy Week].” In addition to free painting, soft drink companies provide other economic incentives to tienda owners, including refrigerators, display cases, chairs, tables, and promotional posters.

Coca-Cola occasionally provides sponsorship of local organizations, buildings, events, and projects. Coke’s regional representative said, “Coke has many social projects. We team up with municipalities, schools, churches, bands, and sports teams. For example, for sports teams we provide uniforms, trophies, medals, and publicity.” This marketing strategy is evident both in Santiago Atitlán and in neighboring Guatemalan communities. In San Lucas Tolimán, for example, Coca-Cola partnered with the municipal government. The names of the current mayor and his administration adorn the side of City Hall in red and white letters, next to paintings of Coke bottles.

With effective marketing, distribution, and integration, Coca-Cola has quite literally achieved its company goal to make Coke available at “an arm’s length from desire” (Pendergrast 2000) among the Tz’utujil Maya. Extensive marketing strategies, both traditional and Tz’utujil-tailored, account for the increasing success and profits of soft drink companies in Guatemala and in Latin America.

Cultural Hybridization

While soft drink marketing in Guatemala often attempts to integrate soft drinks through sponsorships and partnerships with local organizations, soft drinks are also integrated into Tz’utujil daily life in distinct ways not foreseen by soft drink companies. In Santiago Atitlán, for instance, Coca-Cola and other soft drinks have become interwoven into the healing practices, cooking, language, daily life, and celebrations of the Tz’utujil Maya.

Coca-Cola has become integrated into some Tz'utujil beliefs regarding medicine and cures. Ten of 53 respondents (18.86%) believed that Coca-Cola had curative medicinal value (table 2). The most commonly cited medicinal purposes of Coca-Cola were for coughs and sore throats, although Atitecos also used Coke to cure fevers, headaches, mouth sores, and stomach-aches.

Atitecos who used Coca-Cola to cure coughs or sore throats described their use of Coca-Cola as a key ingredient in a cough elixir, generally boiling Coca-Cola with herbs. One 63-year old woman explained,

For a cough or throat pains, I boil Coca-Cola with ginger roots and a few thyme leaves. After the Coke boils, I add marshmallows. I use herbs, but some Atitecos just boil Coke with marshmallows. I have given this remedy to my grandchildren many times when they were sick. After one drinks the Coke, one cannot shower for three days, because showering will make one cold.

Several variations on the theme of boiling Coca-Cola emerged. Some Atitecos boil Coke with local herbs such as *pericon* instead of ginger and thyme. In addition, guidelines and schedules have in some instances been developed for using Coke as medicine. One 20-year-old respondent said that he drank boiled Coke at a schedule of “three times a day, just like other medicines.” Many respondents believed that Coca-Cola only and not other colas like Pepsi contain this curative value. However, some Atitecos also use 7-Up for calming upset stomachs.

Beliefs about the medicinal value of Coca-Cola may have emerged in Santiago Atitlán because of the original health intentions of soft drink and Coca-Cola inventors. Sodas were originally invented around the 1760s as a form of healthier water, as water-borne pathogens were a major source of disease (Wolf, Bray, and Popkin 2008). In 1886, an Atlanta pharmacist named John Pemberton invented Coca-Cola as a remedy for headaches; therefore, Coke was originally marketed as a tonic for the brain (McBride 2005; Wolf et al.).

Coca-Cola and other soft drinks have become incorporated into the local hot-cold theory of foods and diseases, derived from Greek humoral pathology, in which particular substances are thought to possess innate hot or cold characteristics (Currier 1966; Cominsky 1977). Although a great degree of variability exists, cold substances tend to be higher in water content than hot substances (Manderson 1987) and among the Tz'utujil Maya, Coca-Cola tends to be classified as a cold substance. For instance, one 20-year old Tz'utujil man said, “During the summer when it is hot, I work a lot outdoors and my body becomes overheated. A cold Coke cools my body down and is very refreshing.” Local television and print advertising depicting the refreshing nature of Coca-Cola on hot days reinforces its use as a coolant. Cold substances are often taken for refreshment by a person who feels the heat of the day (Manderson). In contrast, during periods

of cold weather, the Tz'utujil Maya often avoid cold soft drinks or serve them at room temperature because a cold drink might cause "cold" illnesses (Goody 2002).

Cold substances are also thought to help relieve hot illnesses, which include sore throats (Manderson 1987; Currier 1966). Therefore, the use of Coca-Cola, a cold drink, as a remedy for sore throats, a hot illness, is in accordance with hot-cold humoral theories. Foods with innately cold qualities must often be warmed for the stomach before ingestion in order to have therapeutic effects, which explain why Coca-Cola is boiled when used as medicine (Currier). Although cold substances like Coca-Cola can be used to correct an imbalance caused by hot illnesses like sore throats, an excess of coldness is also believed to cause ill health (Manderson). For this reason, some Atitecos believe that one should not take a cold shower after drinking a cold beverage like Coke, which may lead to an overabundance of cold in one's body.

Although many Atitecos classify Coca-Cola as a cold substance, it is important to note that many studies on hot-cold classifications have found significant degrees of intracultural variation and interpretation, and few foods have achieved complete consensus as to their innate hot-cold qualities (Foster 1979; Currier 1966; Manderson 1987).

In addition to medicines and hot-cold classifications, many Atitecos have integrated Coca-Cola into local cooking. Coca-Cola can be useful as a cooking ingredient because of its acidity (pH of 2.3) and its sweet and sour contrasting tastes (McBride 2005). One special dish popular in Santiago Atitlán and throughout Guatemala is rooster marinated in Coca-Cola, called *gallo con Coca-Cola*. Atitecos cook an old rooster (which can be substituted with chicken if a rooster is unavailable) prepared with a glass of Coca-Cola, onions, bay leaves, garlic, pepper, tomatoes, and cinnamon. Atitecos prepare this special Guatemalan dish particularly during Christmas, local festivals, and weddings. Thus Coca-Cola is a central ingredient in traditional celebratory foods, used mainly for its color and sweet-sour taste and its distinction as a specialty food. Other hybrid Guatemalan dishes include turkey, pig leg, and ribs cooked in Coca-Cola. One 63-year old Atiteco woman said,

Every year, my sister and I helped to cook for the Festival of San Antonio Chacayá [a rural farming region of Santiago]. During this festival, we learned to cook a dish called gallo con Coca-Cola, which was served every year. Later, for my son's wedding, we cooked gallo con Coca-Cola for 600 guests. Coca-Cola gives a rich flavor and produces a red and coffee colored meal. Everyone liked the rooster and asked for the recipe.

Coca-Cola's cultural hybridization extends beyond cooking and recipes to language. Many of the Atitecos interviewed believe that "Coca-Cola" is a Spanish word and a product of Guatemalan origin, similar to findings among

rural Argentinesans (McBride 2005). In Santiago Atitlán, the term “Coca-Cola shape” has become shorthand for a girl’s ideal body shape similar to the glass bottles that Coke comes in, a term also popular in Belize (Anderson-Fye 2004). One 17-year old Atiteco boy explained that a Coca-Cola shaped girl has “a large bottom, skinny waist, and large breasts, just like a Coke bottle.” In contrast, the unflattering term “2-Liter Coke bottle” signifies a less slender female body shape that does not curve in at the waist.

Of particular interest in cultural hybridization is the role of Coca-Cola and other soft drinks during celebrations, special events, holidays, and festivals. In Santiago Atitlán, interviews and participant observation revealed that Coca-Cola and other soft drinks were important beverages for all types of special events including weddings, graduations, birthdays, *quinceañeras* (15th birthday celebrations), and funerals. One 41-year-old Atiteco woman said, “We usually toast at weddings, birthdays, and graduations with Coke or other sodas since our family does not drink alcohol.”

Rather than taking on a strict association with America or capitalism, Coca-Cola has become uniquely integrated into all aspects of Atiteco life, including cuisine, language, practical application, special events, and celebrations.

Religion and Coca-Cola

Just as Coca-Cola and other soft drinks have become hybridized into Tz'utujil dietary and health beliefs, they have also become integrated into religious beliefs in Santiago Atitlán. The local deity named Maximón provides a prime example of the amalgamation of Coca-Cola and religious beliefs and practices in Santiago Atitlán. As the patron saint of the Cofradía Santa Cruz in Santiago Atitlán, Maximón is the focus of rituals which include drinking, prayers, gifts of liquor, tobacco, food. With a crude wooden mask on his façade, the figurine of Maximón sports an Atiteco shirt, belt, pants, and a bib made of 30 silk scarves. Many Atitecos and believers from all over the Guatemalan highlands visit Maximón with gifts and offerings, often including liquor, cigars, and food.

The hybridization of Coca-Cola and religion in Santiago Atitlán is evidenced by the story of Salvador, a 50-year old Tz'utujil father encountered during the first of the authors’ many visits to Maximón. As Salvador entered the dark, smoke-filled room housing Maximón, he explained to the *cofrades* (members of the congregation) that his daughter’s wedding was scheduled for the weekend. Salvador hoped to pray to Maximón for a smooth wedding and a prosperous marriage for his daughter. As Salvador knelt down in front of the deity, he produced a one-liter glass bottle of Coca-Cola as an offering to Maximón. The head cofrade took the bottle and offered it to Maximón, gesturing that he was pouring it down Maximón’s mouth. Soon after, the cofrade announced that he received an order from Maximón to distribute

the Coke to everyone present. He took out eight cups, filled them with the Coca-Cola, and offered them to everyone. Although a few visitors initially refused, the cofrade would not permit them to leave until they consumed the Coke, stating that “it was the will of Maximón.”

Subsequent interviews with members of the cofradía confirm that many Atitecos bring soft drinks as offerings to Maximón, in addition to candles, alcoholic beverages, and cigars. The head cofrade said, “Maximón enjoys drinking Coca-Cola, and so do we,” referring to a stack of over 25 cases of consumed Coca-Cola along the house’s wall, each case containing 24 empty glass soda bottles.

In addition to Maximón, soft drinks have been incorporated into Christian celebrations and services. During celebrations like *Semana Santa* and the *Feria del Apostol Santiago* (Festival of Saint James the Apostle), soft drinks are integrated into rituals while soft drink companies boost their marketing and promotions.

The biggest celebration in Santiago Atitlán is the *Feria del Apostol Santiago*, dedicated to the patron saint of the town, occurring in late July. During the festival, an annual themed parade garners the participation of every school in the town. Under the theme of “Traditions of Santiago Atitlán” in 2007, children from one primary school, all dressed in traditional Tz’utujil *traje* (clothing), carried cases of soft drinks on their shoulders. The soft drinks represented typical drinks given in a Tz’utujil bridal dowry. Furthermore, Coca-Cola sponsored the parade, so a van adorned in Coca-Cola logos and equipped with loudspeakers advised Atitecos to enjoy the Festival of Santiago with Coca-Cola. Pepsi supplied the central park with vending kiosks, tables, chairs, and tent coverings, all bearing the company’s blue and white logo.

Coca-Cola, the Environment, and Water

The importance of Coca-Cola among the Tz’utujil Maya can be understood in relation to drinking water. In Santiago Atitlán, Coke and Pepsi cost less than bottled water if purchased in a returnable glass bottle (354 mL). Vendors sell bottled water for a higher price as it is unavailable in returnable glass bottles. However, water costs less than soft drinks if purchased in 5-gallon reusable plastic jugs or in plastic bags.

One 26-year old Tz’utujil male said, “The tap water in Santiago Atitlán is very contaminated, so I only drink bottled water or soft drinks. Because bottled water is so expensive I prefer soft drinks since I get more value.”

Furthermore, in Santiago Atitlán, the shortened term for Coca-Cola is either *una coca* or *agua* (water). Coca-Cola has become so ubiquitous in the diets of the Tz’utujil Maya it is synonymous with the word for water.

Soft drinks and their containers have become entangled in the complexities of sanitation and the environment in Santiago Atitlán. On the one

hand, when potable water is unavailable, soft drink consumption may help decrease the risk of bacterial infection (McBride 2005). In addition, returnable glass or plastic bottles promotes the recycling of soft drink containers and may limit the amount of littering resulting from soft drinks. Nonetheless, soft drink containers and other non-biodegradable food wrappers persist in the town's streets and ultimately are washed into Lake Atitlán, the town's source of tap water. Many residents of Santiago Atitlán believe the municipal tap water is dirty for this reason (Nagata et al. 2011). Therefore soft drinks and their containers contribute to the contamination of the lake, leading to soft drinks' viability as an alternative to the polluted lake water.

CONCLUSION

Coca-Cola has been uniquely hybridized into the health beliefs, religion, culture, and environment of the Tz'utujil Maya. Whether mixed with local herbs as a medicinal remedy, cooked with rooster for annual festivals, or offered with prayer to Maximón, Coca-Cola is used in a distinctive Tz'utujil way. Simultaneously, for every element of integration into Tz'utujil culture, Coca-Cola increasingly penetrates Tz'utujil life, earns greater profits, and influences nutritional health. Coca-Cola's rising sales and profits throughout Latin America may be interpreted as the company's economic invasion of the region, implying that capitalist imperialism and conquest reigns. However, Coca-Cola and other soft drink companies are only able to achieve high levels of financial success by adapting their marketing strategies to "think locally and act locally" (McBride 2005, 82). Coca-Cola must sponsor and partner with local municipalities, businesses, schools, churches, and organizations to permeate local culture. The more that Coca-Cola's presence penetrates local life, through a combination of colonization and hybridization, the more it impacts nutrition and health in Santiago Atitlán.

In terms of nutrition and health, Coca-Colonization creates a framework where local businesses, particularly *tiendas*, promote soft drink consumption as they gain income and profits from soft drink sales. Coca-Cola also becomes hybridized into local festivals and food dishes, making the product a more ubiquitous part of Tz'utujil culture. As a result of this integration, it becomes nearly impossible for health care professionals to design nutrition interventions without also impacting the economy and culture.

Biomedical health professionals in Santiago Atitlán remain concerned about rising Coca-Cola and sugar-sweetened processed food consumption, particularly in light of the increasing prevalence of type 2 diabetes and obesity (Nagata et al. 2009). The biomedical literature finds that soft drink consumption is significantly positively associated with obesity and overweight, body mass index, body fat percentage, and energy intake (Giammattei et al. 2003; Gillis and Bar-Or 2003; Vartanian et al. 2007). In

this biomedical context, health professionals provide patients and community members with dietary advice to reduce consumption of soft drinks and sugar-sweetened processed foods. The Tz'utujil Maya receive contrasting messages regarding consumption of Coca-Cola. Although biomedical health professionals label Coca-Cola as “unhealthy,” extensive corporate marketing strategies flaunt healthy, athletic, and successful consumers of soft drink products (Leatherman and Goodman 2005) while local healers and religious leaders seem to endorse the product for one's health. These competing messages may influence the diversity of health beliefs related to Coca-Cola consumption in Santiago Atitlán. In addition, Coca-Cola may be viewed as a status symbol or a drink of distinction, particularly in a society where obesity is associated with high socioeconomic status (Bourdieu 1984; Nagata et al. 2009).

In a positive light, Coca-Cola may contribute to the local economy and even strengthen Tz'utujil identity. Soft drink consumption may have beneficial effects as an alternative to ethanol consumption, potentially reducing the deleterious effects of alcoholism.

This study contains several limitations. The relatively small sample size in the semi-structured questionnaire may limit any definitive quantitative conclusions. Seasonality may influence the study's findings, as research periods were limited to March through August and soft drink consumption patterns may differ throughout the year. In addition, the categorization of health beliefs into dichotomous categories of “healthy” or “unhealthy” in the questionnaire may have limited respondents' choice. This study focuses on Coca-Cola, but Pepsi and other colas were viewed essentially the same by locals in terms of health beliefs, although individual preferences vary. Furthermore, although this study focuses on soft drinks, numerous diet-related factors influence health and nutritional status among the Tz'utujil Maya. For instance, high levels of carbohydrate consumption in the form of tortillas have been a staple of the Tz'utujil diet for centuries.

The direct effects of soft drink consumption on health have not been well studied in developing countries; therefore a causal relationship between soft drinks and rising obesity among the Maya cannot yet be established. Although Leatherman and Goodman (2005) posit that Coca-Colonization may exacerbate the “double-edged sword of malnutrition” by increasing obesity among adults and growth stunting among children, further research is required to discern soft drinks' direct health effects in the developing world, particularly in relation to nutrient intake, growth stunting, and obesity. Nonetheless, Coca-Cola serves as a highly visible, ubiquitous, and symbolic product that reflects biocultural dietary change in Santiago Atitlán.

This study identifies how the ubiquitous presence of Coca-Cola, Pepsi, and other soft drinks in Santiago Atitlán simultaneously represents economic conquest and cultural hybridization among the Tz'utujil Maya.

Increasing penetration of soft drinks into Tz'utujil economic development, health beliefs, religious practices, daily life, and celebrations yields complex nutritional and health consequences. Although this study examines these phenomena in the western highlands of Guatemala, Coca-Colonization and hybridization and their related nutritional consequences apply globally given the international pervasiveness of Coca-Cola in terms of foreign investment, distribution, and marketing. After all, the sun never sets on the Coca-Cola Empire.

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